Bycatch Research in the West Coast Groundfish Fishery

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Outline

- Design and field testing of an open escape window BRD to reduce salmon and rockfish bycatch in the Pacific whiting fishery
- Providing direct observation video camera systems to fishermen for use in evaluating industry-designed approaches to reducing bycatch and reducing impacts to benthic habitats
- Future directions

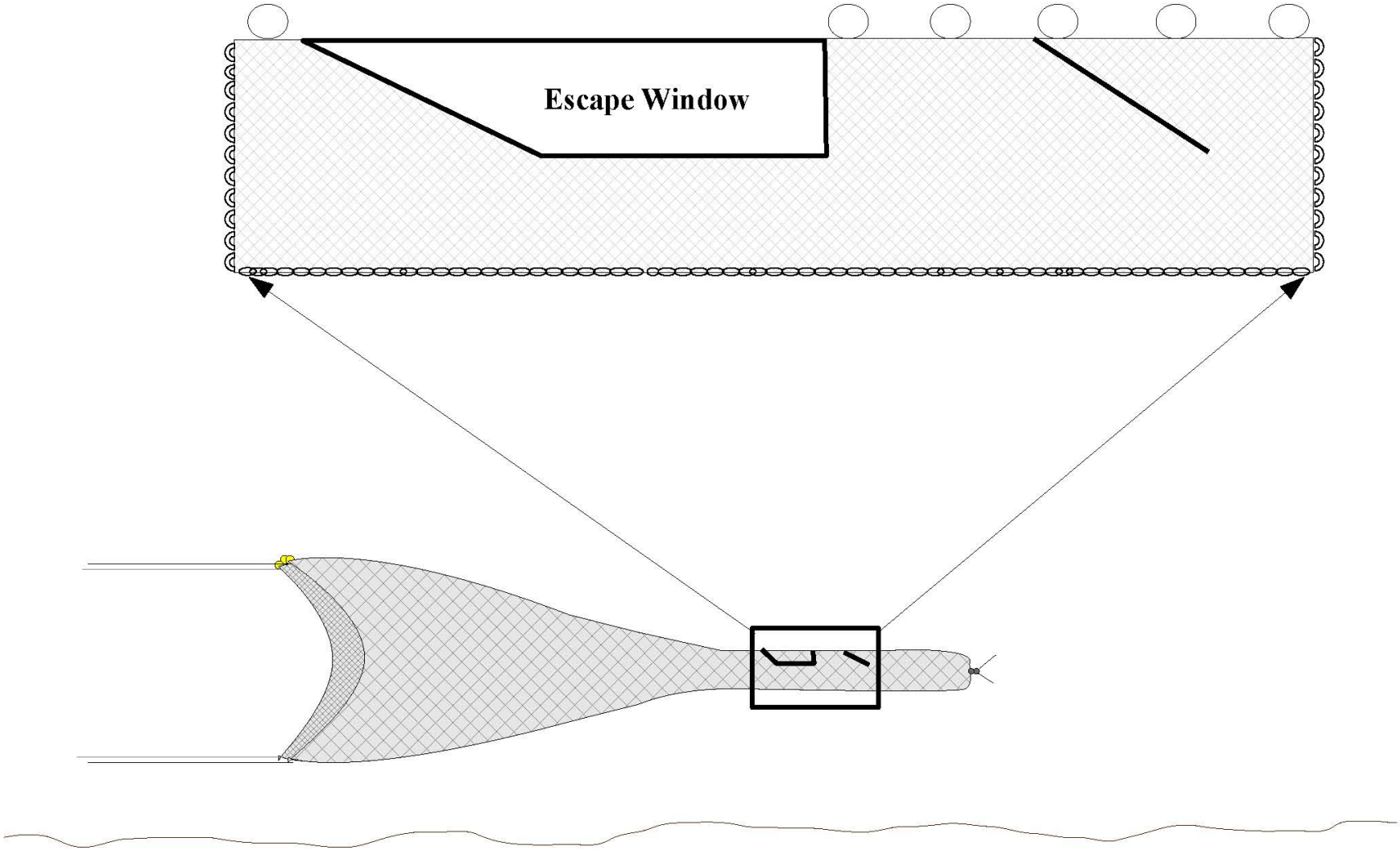
Hake Fishery Facts 2010

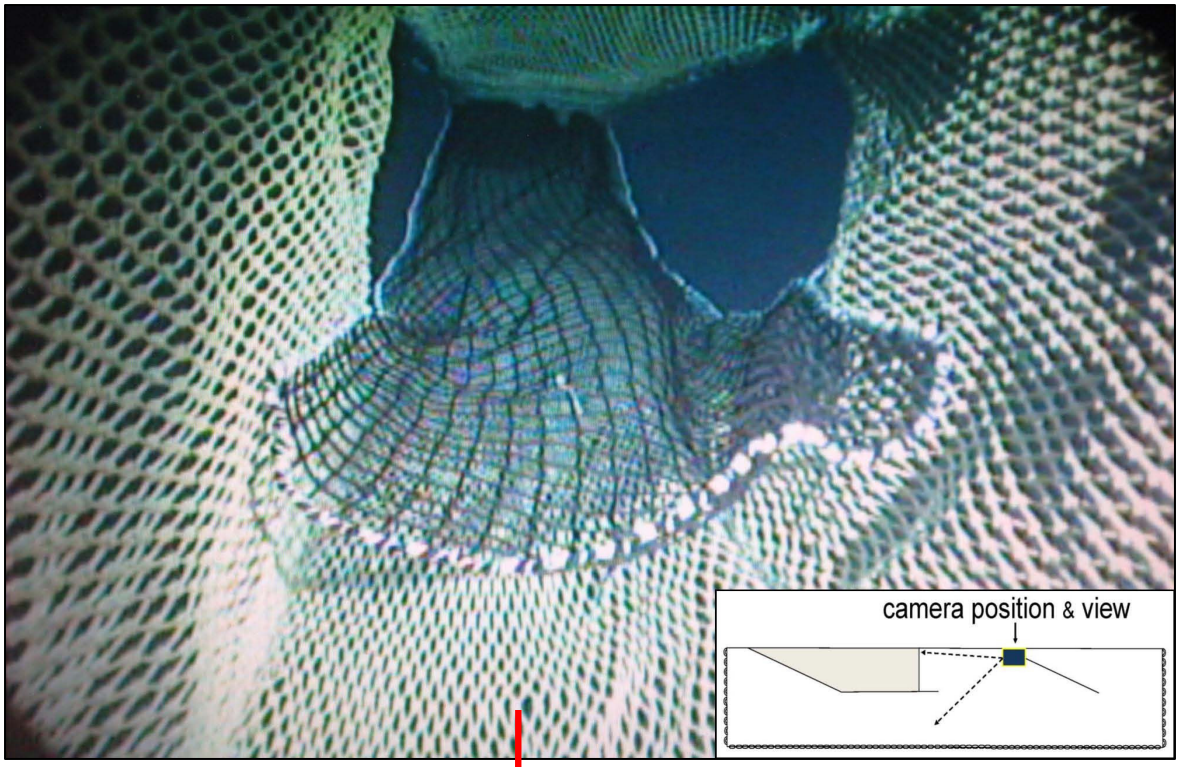
- 3 sectors: mothership, C/P, shore-based
- Vessels deliver unsorted catches
- Each section has its own specific bycatch hard cap limit for salmon, canary, darkblotched, and widow
- Shore-based sector gets the largest % of the hake allocation (42%)
- Salmon to hake ratio is <0.05 individual salmon per metric ton of hake
- Level of rockfish bycatch allocated varies each year and between species Highest bycatch limit is for widow with less allowed for canary and darkblotched.
- Bycatch limits for salmon are set by individuals (11,000 for the entire fishery), whereas rockfish bycatch limits are set by the metric ton

Hake Fishery Facts 2010

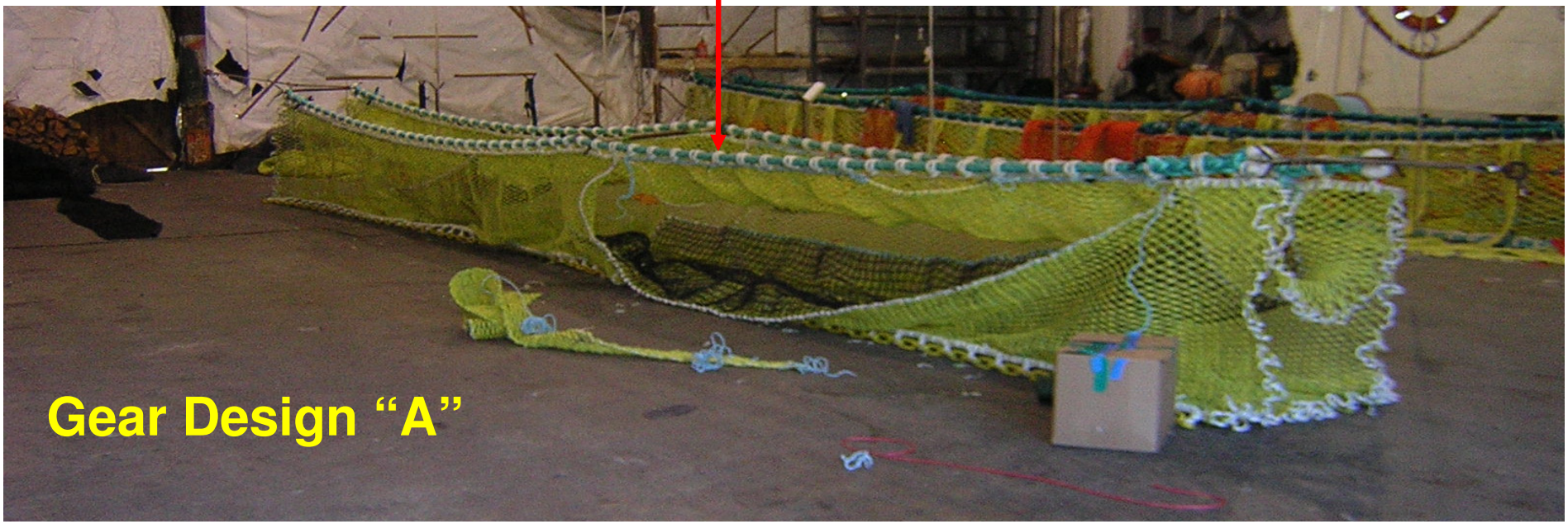
- Rockfish bycatch differs across sectors, typically
- Since 2005, bycatch has altered or closed the fishery in 3 of the 5 years (salmon 2005, widow 2007, canary 2008). In 2010 the mothership fleet was close to closing because of darkblotched rockfish bycatch, whereas the shore-based section is reaching their canary bycatch limit

Open Escape Window Bycatch Reduction Device



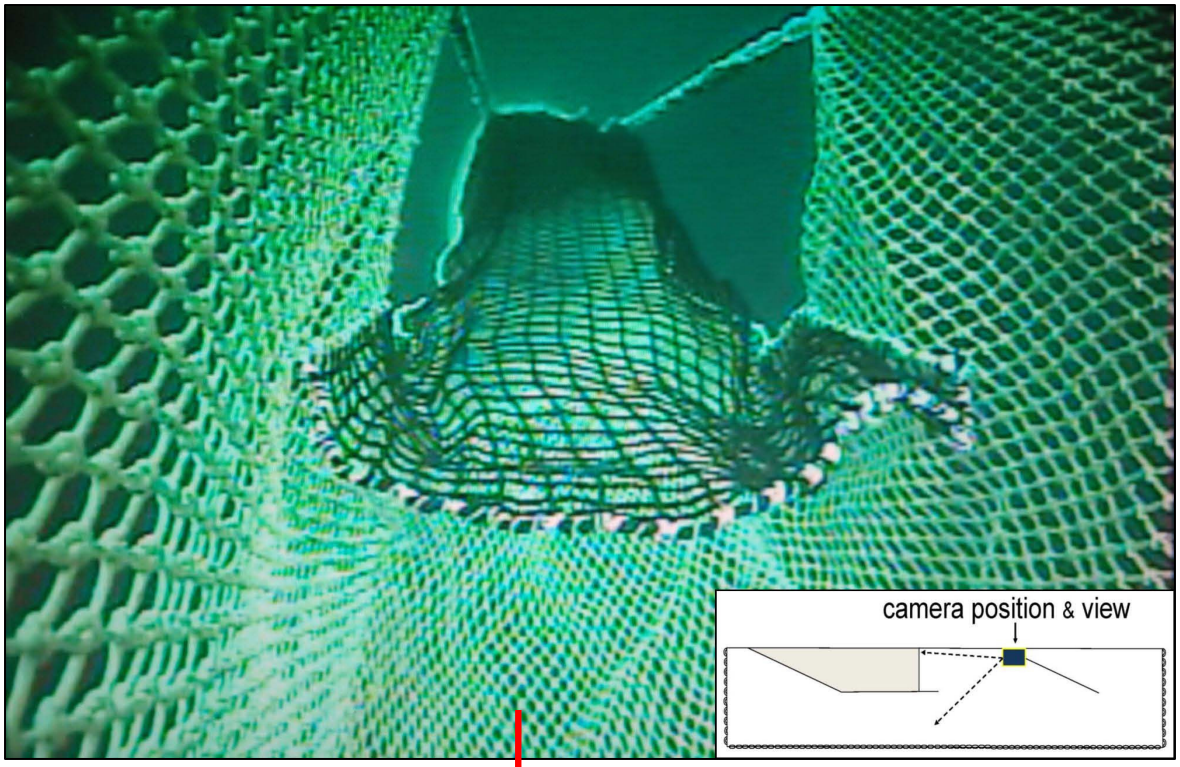


FOULWEATHER TRAWL LLC



F/V Miss Sue

LOA = 81’
Back deck width = 27’
Stern ramp = 8’ diam.
HP = 640
Tow speed = 2.8 to 3.0 knts.



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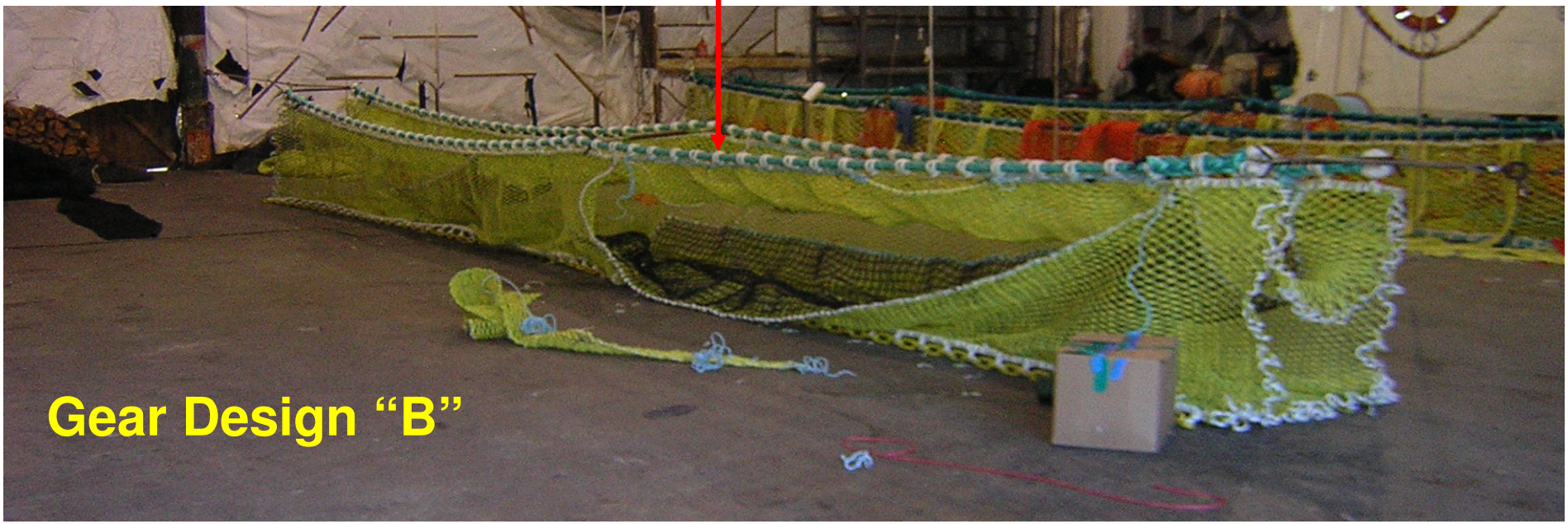
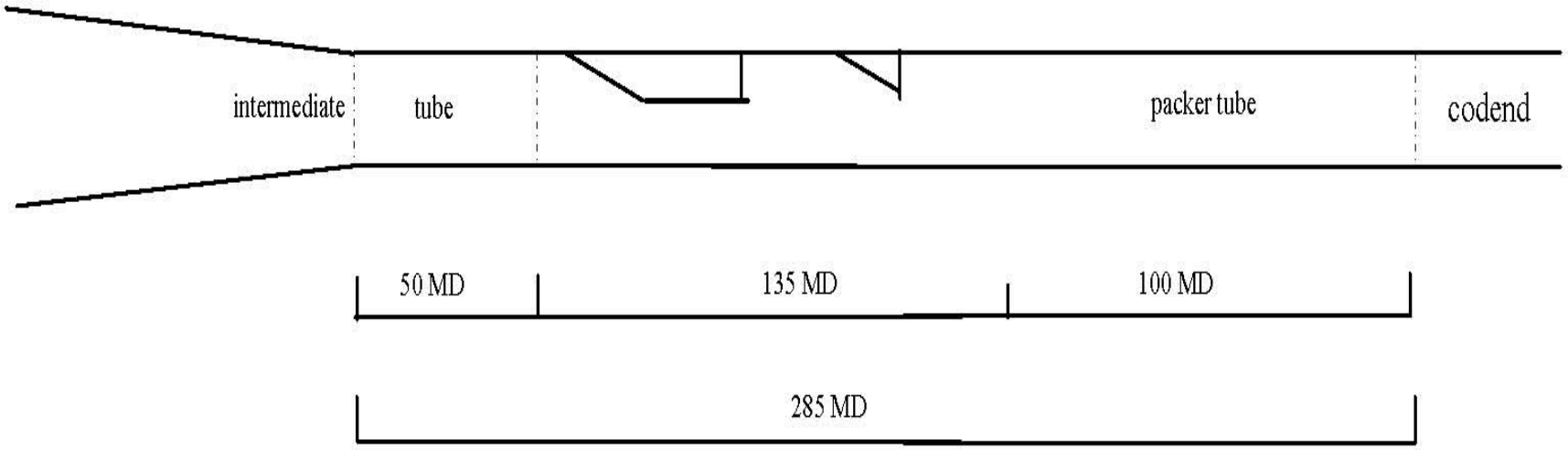


Gear Design “B”

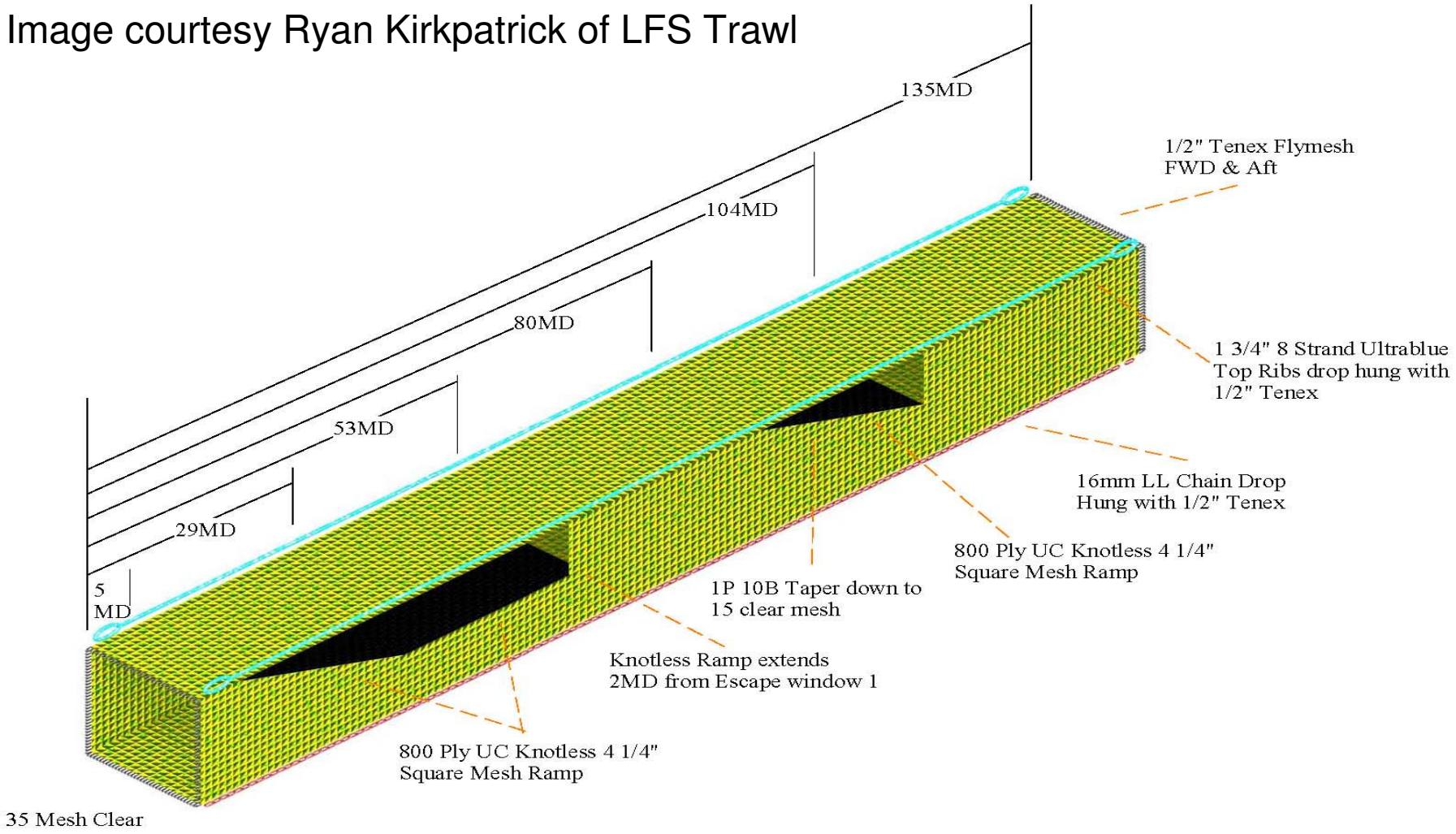
Excluder Configuration in the Trawl in 2010



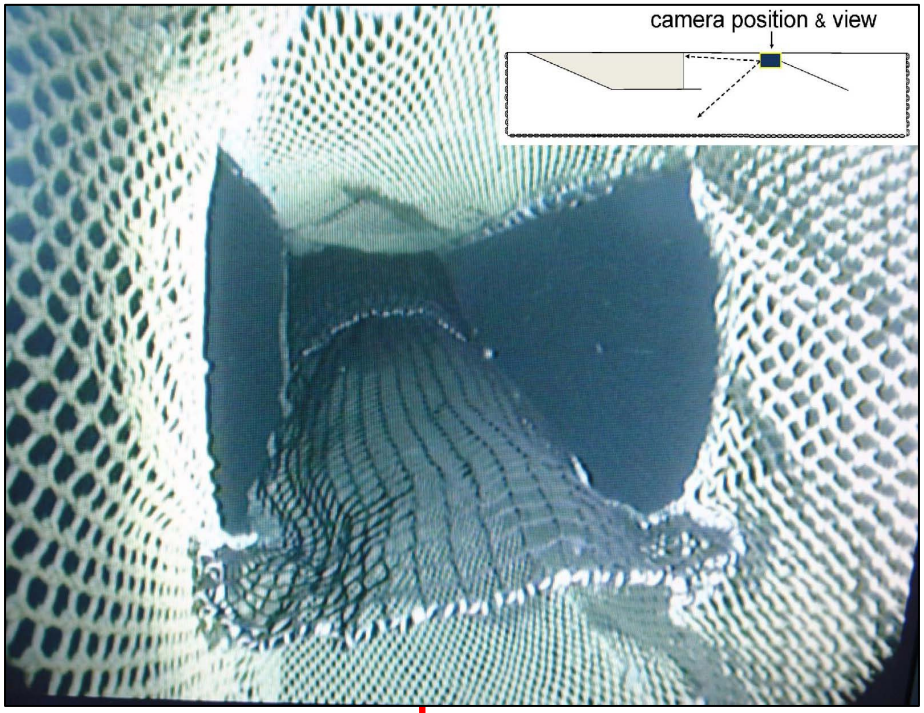
Gear Design – C

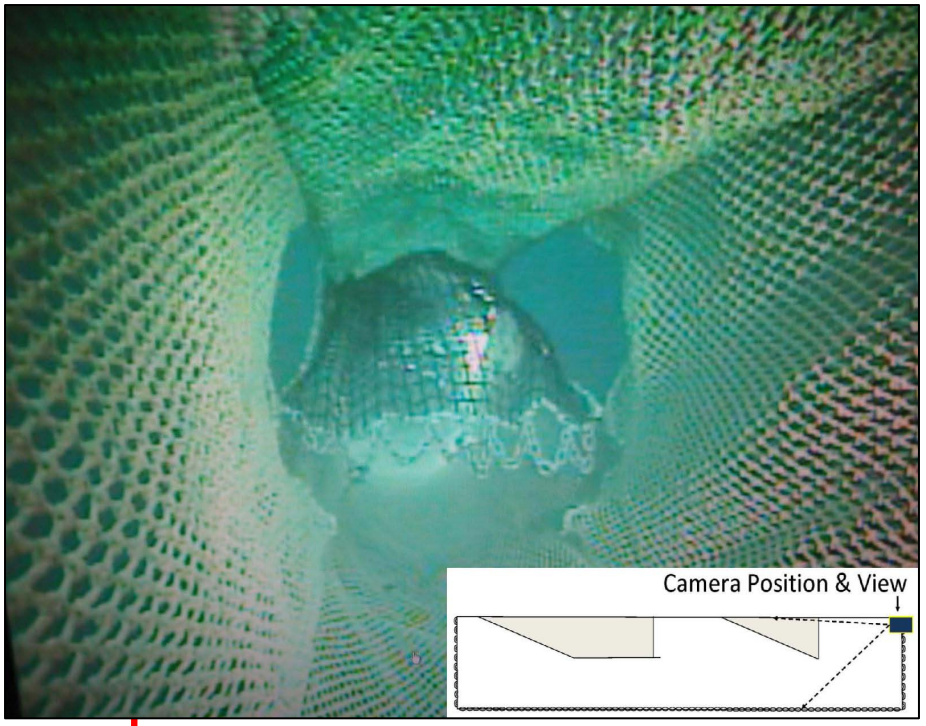
Excluder Design

Image courtesy Ryan Kirkpatrick of LFS Trawl



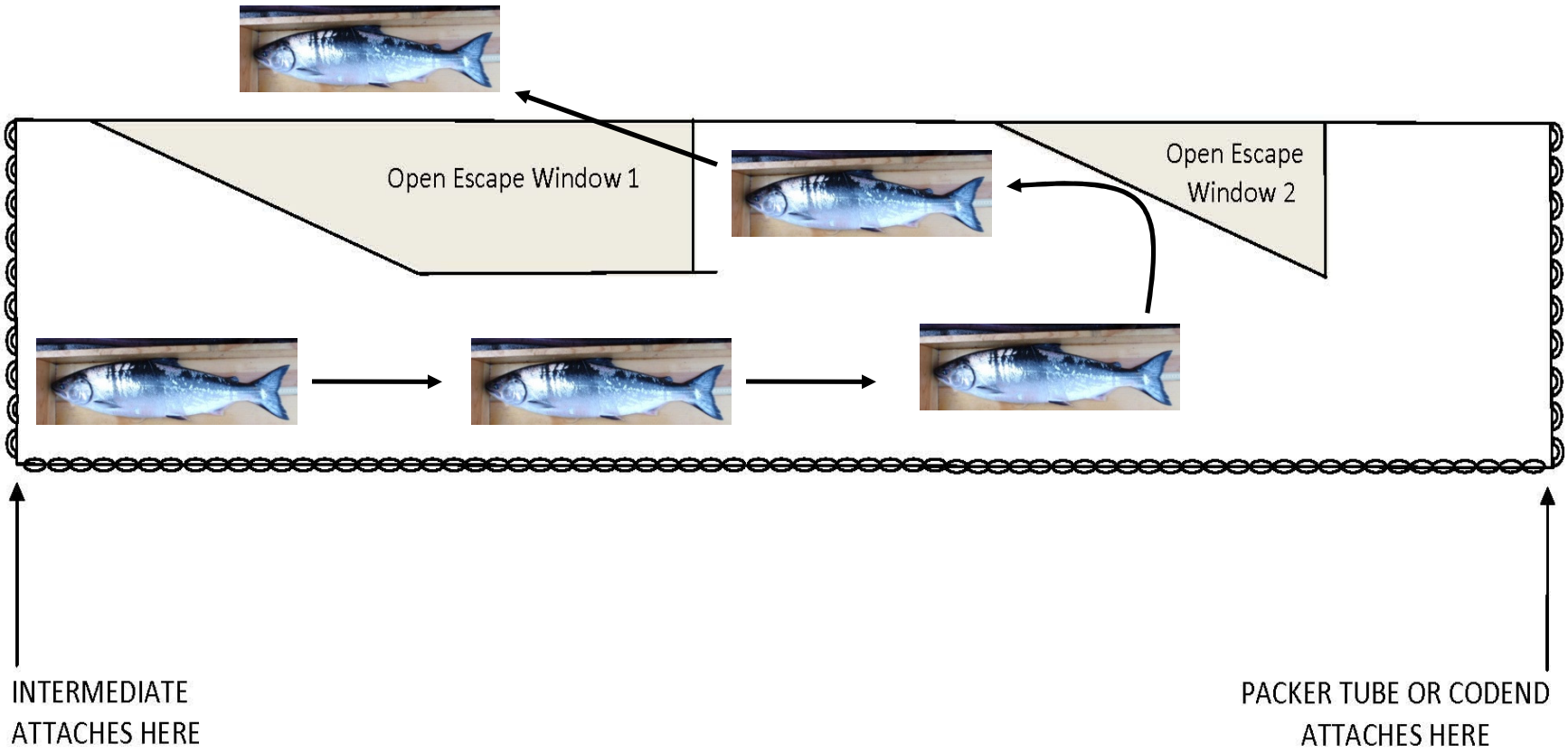
Gear Design – C


camera position & view


Camera Position & View


Gear Design “C”

How to Escape



Gear Design – C

In situ videos

Three clips:

Salmon

Rockfish

High volume of hake

Lapsed Time to Escape

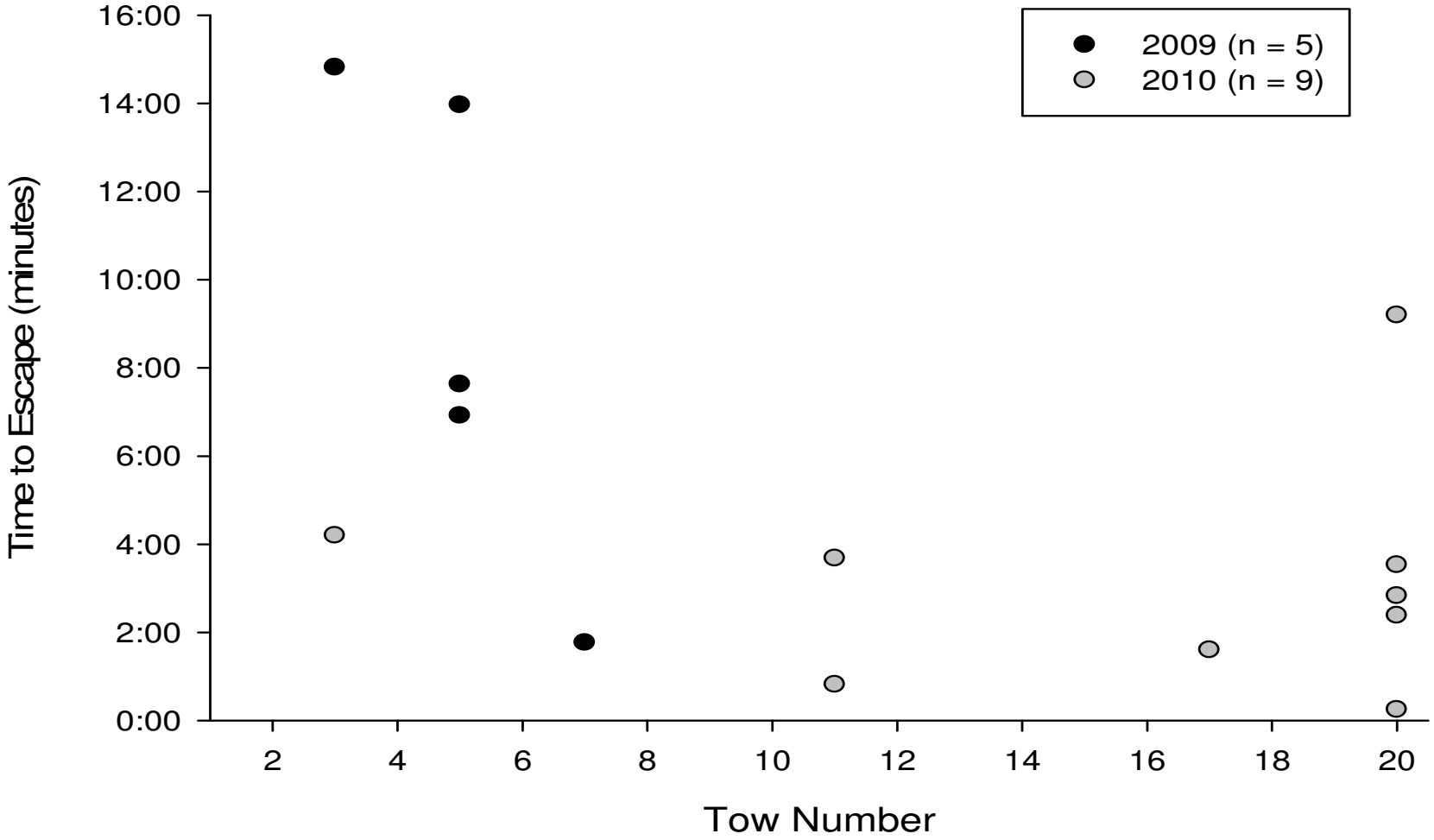


Table 1. Summary of salmon encounters and escapes by BRD design examined during 2009 and 2010

	BRD Design - A	BRD Design - B	BRD Design - C	TOTAL
No. of Good Tows Conducted	16	1	6	23
No. of Salmon Encountered	16 3*	2	8	26
No. of Salmon Noted to Escape	8	1	6	15
% Bycatch Reduction	**50.0**	**50.0**	**75.0**	**57.7**

*** Salmon caught forward of the BRD in the trawl intermediate section – a total of 19 were caught.**

Table 2. Summary of rockfish encounters and escapes by BRD design examined during 2010

	Widow RF	Canary RF	Yellowtail RF	TOTAL
No. Encountered	54	7	1	61
No. Noted to Escape	0	1	0	1
Gear Design Encountered	A (53),C (1)	A	C	2
% Bycatch Reduction	**0.0**	**14.3**	**0.0**	**1.6**

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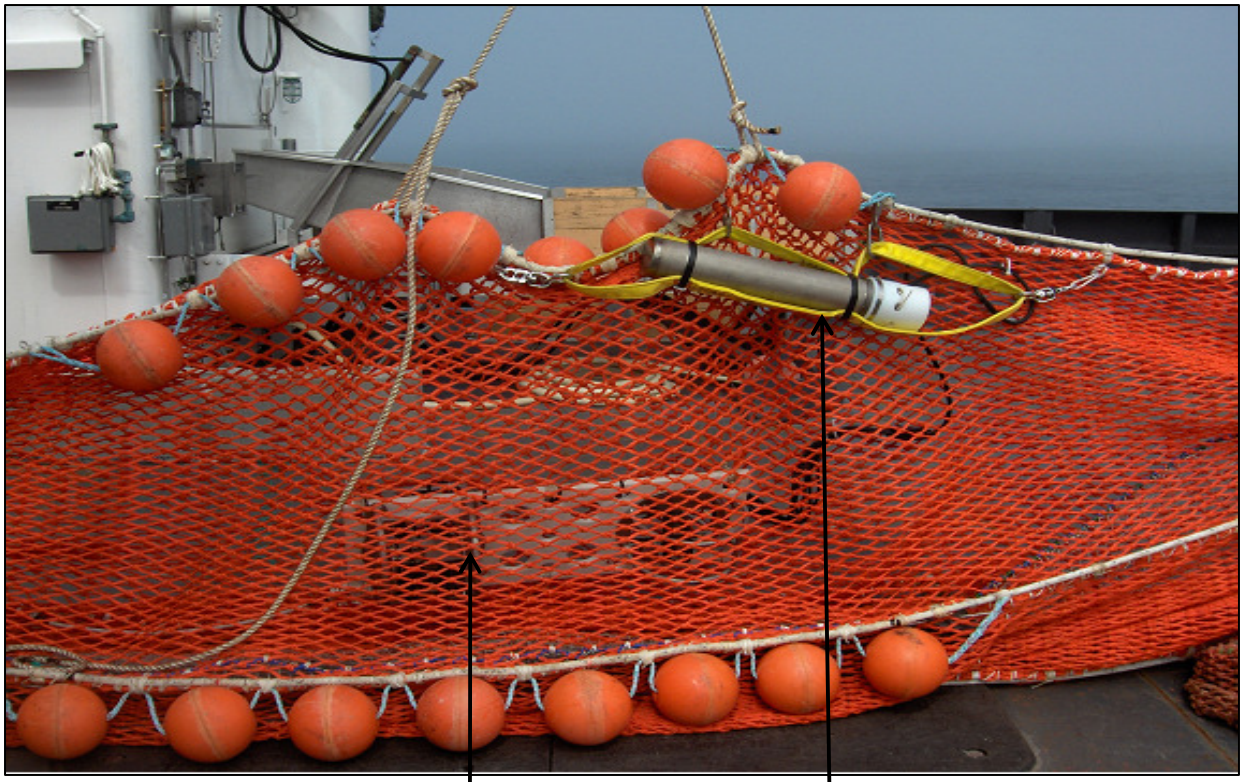
Assembled Camera System

Example of a Camera System in a Trawl Net



F/V Miss Sue Capt. & Crew

Future Directions

- Refine the development of BRD designs for the Pacific hake fishery, including the application of recapture bags and the use of the DIDSON ultrasonic camera
- Investigating the use of light stimulus to enhance salmon escapement
- Responding to emerging fishing industry needs under catch share management - initial workshop planned for October 2010 and deployment of industry loaner in situ camera systems
- Remote marine species discrimination to reduce bycatch using advanced acoustic technologies
- Continue ongoing collaborations with fishermen, net lofts, ODFW, AFSC, and PSMFC

Acknowledgements

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PSMFC – Dave Colpo

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